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The determinants of board compensation in SOEs
An application to Italian local public utilities

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Abstract

This paper investigates the determinants of board compensation for a sample of Italian State Owned Enterprises (SOEs). To that purpose, we use a newly collected panel data of 106 local public utilities observed from 1994 through 2004, which includes detailed information on the boards of directors. During this period, the deregulation process inspired institutional interventions that forced utilities, traditionally owned by local municipalities, to change their juridical form and ownership structure, thereby facilitating the entrance of private investors. The corporate governance literature shows that such changes may exacerbate the agency conflicts between shareholders, top executives and the board. However, board compensation could reduce the agency costs by aligning the incentives of managers with the interests of shareholders. This paper addresses this issue by investigating the impact that board composition, firm characteristics and performance have on board compensation. We find that the average board pay is negatively related to board size and positively related to firm dimension. The public or private nature of the major shareholder does not influence board compensation but the juridical form does. Finally, while the proportion of politically connected directors is found to negatively influence the level of per capita compensation, the impact of firm performance is uncertain.

Keywords: board compensation, board composition, politicians, local public utilities

JEL Codes: G34, J33, L97

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1. Introduction

The remuneration of board of directors and the compensation packages of top executives are two corporate governance instruments designed to improve the internal control of managers and to provide them with the right incentives to behave in the best interests of the shareholders. The monitoring and advising functions of boards are jeopardized by coordination and agency problems that boards might suffer, so that providing directors with incentivizing remuneration schemes (in terms of both the absolute monetary value of total compensation as well as its appropriate mix between fixed cash salary and variable – i.e. performance related - components) becomes important. While CEO's pay has been a hot topic in the economic literature during the last decade, compensation of the board as a whole has received minor attention. Also, most contributions on the determinants and the effects of executives compensation concern listed firms, not only for the availability of data and the economic relevance of such companies, but also for the increasing relevance that pay-for-performance and stock options components have been attaining during the last decades.

The private sector usually defines the best practice standard and it is almost uniform practice for Governments to seek to improve the performance of State Owned Enterprises (SOEs) by emulating the private sector's practices. To that respect, in order to attract well qualified and experienced executives, efforts must be made to include rewards in compensation schemes. However, for reasons of fairness and in order to avoid public controversy over unequal and excessive pay in the public sector, there are serious concerns about the extensive use of incentive remuneration schemes for companies owned by central or local governments:

“As a general rule, Governments tend to regulate and limit the remuneration and incentive awards of both executives and board members of SOEs. Some countries have policies that seek to align pay with market rates but not be market leading. Others prescribe remuneration levels. These prescriptions may be supplemented by prohibitions on share options, or restrictions on bonuses” (Frederick, 2011, p. 21).

The purpose of this paper is to shed light on the determinants of directors' compensation in SOEs. In particular, we analyse per capita board compensation in a sample of 106 Italian local public utilities observed over the years 1994-2004. During this period, the liberalization process was changing the industrial and institutional landscape of the sector. From a corporate governance point of view, new rules were established for the utilities' juridical forms, ownership structure and board composition. Until the nineties, Italian local public utilities were traditionally firms emanating from

the controlling State (often local) body. From the initial status of “*Azienda Municipalizzata*”¹, they have sometimes evolved into a transitional juridical form called “*Azienda Speciale*”, in which managers enjoyed greater control over the firm’s strategy. Nowadays a large majority of Italian public utilities are limited companies with a proper board of directors, in which both public and private entities can invest, according to process labelled *corporatization*. The declared intention of such transformation was to facilitate the evolution of the sector toward a more competitive and market oriented organization in which local public utilities still controlled by municipal governments would nonetheless appear more similar to private firms in their management practices and objectives.

In this perspective, it is important to analyze whether the corporate governance mechanisms are working in publicly owned utilities as good as they do in private companies. In this paper, we focus our attention on the compensation of board of directors and put it into relation with sector and firm characteristics such as size, profitability, ownership structure, board composition and juridical form. During the decade under investigation (1994-2004), most Italian public utilities were still controlled by state entities and their boards dominated by government representatives. For this reason, this paper adopts a definition of board composition that takes into account not only the difference between inside and outside directors and between “independent” versus “not independent” outsiders, but also the political connection of board members, by distinguishing them between “politically connected” and “non politically connected”.

Our findings suggest that both board size and board composition matter for director’s compensation. In firms where boards are bigger and dominated by politicians, remunerations are lower. On the contrary, per capita pay increases for big firms and for utilities that take on the limited company form. Finally, the estimates show that there is not a clear-cut relationship between performance and the average compensation of board of directors.

The remainder of the paper is organized as follows. Section 2 reviews the relevant literature, that mostly concentrates on listed private firms. Section 3 explains the definitions adopted, describes the data set and shows some first descriptive statistics. Section 4 illustrates the econometric model and presents the main results of our empirical analysis. Section 5 concludes.

2. Literature review

Several studies have examined the determinants of executive compensation as well as the relationship between executive compensation and firm performance. As shown by Murphy (1999) in

¹ This is an autonomous legal entity emanating *de facto* from the sovereign government, with a board of directors (called “Commission”) which is directly nominated by the state owner.

his extensive review of the literature, most empirical papers focus on the U.S. experience, on CEO's pay, and use datasets which are based on samples of listed private firms. On the contrary, the literature on incentives schemes for board of directors (as a whole, as a function of their composition and in relation to firm performance) is not well developed as yet. After the explosion of corporate scandals that starting from 2001 burst over the financial markets in the US and in Europe, practitioners, politicians and scholars have been much more critical in evaluating boards of directors as an effective corporate governance instrument being able to monitor the behaviour of managers and to protect the interests of shareholders. Most of the literature has highlighted the importance of having small boards and a relevant fraction of independent directors. More recently, and (again) for listed firms only, the remuneration of boards of directors as an incentive to better control the management has become a relevant topic in the financial literature (Adams et al., 2010).

2.1. Managerial remuneration and firm performance

In firms with greater growth opportunities, top managers may be affected by the moral hazard problem to a greater extent than in other firms and, at the same time, benefit more from the effort exercised in their functions. In such companies, the management frequently takes non-routine decisions with a long-term horizon that the board and the shareholders might find it difficult to fully appreciate and evaluate. Moreover, in such events the traditional accounting measures might be inadequate to reflect the effects of managerial strategies. For the above reasons, a common result in the empirical literature is that, in order to better align managers' and shareholders' interests, equity-based incentives are frequently used by bigger firms and by firms facing greater growth opportunities.

The moral hazard problem affects not only the management but also the board of directors that must be motivated not to pursue self-interested goals in its controlling and monitoring tasks. In order to independently and objectively evaluate the quality of managerial proposals about investment opportunities and financial commitments, the board exercises an effort in gathering, developing and analyzing the relevant information. The quality of this information depends on the incentives the board perceives and affects the agency costs borne by shareholders. The moral hazard problem concerning the actions taken by the board is part of a "double agency" problem (between the shareholders and the board and between the board and the managers) that might be mitigated by suitable incentive mechanisms.

The empirical literature has not reached conclusive results as far as the links between managerial (and board) compensation and firm performance are concerned. The results are mixed, with evidences of either a positive or negative relationship between compensation and firm

performance, depending on the type of remuneration considered (cash, stock, base salary, variable salary part) as well as on the measure of firm performance. The controversial results depend also on the differences between the degree of development of financial markets across countries and on the specificities of Anglo-Saxon governance systems *vis à vis* Latin and Asiatic ones. In a recent review, that compares the two main views about executive pay (i.e. the market-based view that sees compensation schemes as effective in giving managers the right incentives to maximize shareholder value, and the “self-serving” view, according to which high-pay managers are skimming firms’ profits and expropriating shareholders), Goergen and Renneboog (2011, p.1076) sum up as follows: *“The available empirical evidence indicates that managerial self-dealing and the skimming of corporate profits by managers through compensation packages are tangible problems. Executive compensation often seems to be in conflict with shareholder value creation.”*

However, a complete analysis of the link between board compensation and firm performance cannot be undertaken in this paper, for at least three reasons. Firstly, detailed information on the different components of board compensation is not available for the sample firms. Second, most of the utilities in our sample are not listed, so that there would be no chance for them to link board compensation to the stock market value. Third, Italian public utilities do not implement, or do not publicize through the resources we have explored, any incentive plan for their directors. On the basis of the results obtained by the previous literature, we will include firm performance among the determinants of board compensation but, in consideration of the reality of Italian public utilities, we do not expect any significant effect of it.

2.2. *The determinants of compensation: firm size and board size*

Firm size is considered in a great number of papers as an important variable explaining executive compensation. The complexity of the job, the skills required, the number of hierarchical structures and the ability to pay, all point towards large firms paying their directors more. Most studies confirm that the salaries of executives increase with firm’s size (as measured by sales, total assets, or invested capital). Gabaix and Landier (2008) push the analysis forward so as to sustain that firm size, without any other variables, can explain almost completely the variation of the level of CEO’s compensation.

The link between board size and executive compensation is uncertain. On the one hand, large boards of directors are likely to have a wider level of expertise. On the other hand, they can grow so oversized that they become ineffective in coordinating and accomplishing their role of monitoring the top management. Relatively few papers have included board size among the regressors. Firth et al. (2007) have tested the hypothesis that “no relation exists between CEO pay and board size”.

Since their estimates on a sample of 549 listed Chinese companies observed from 1997 to 2000 show evidence of a negative relationship between board size and CEO's compensation, the null hypothesis can be rejected, but the authors do not attempt to offer an interpretation of such an outcome. Feng et al. (2007), using a sample of 136 US Real Estate Investment Trusts (*REITs*) observed in 2001, find that total director compensation is significantly negatively related to board size, which suggests that large boards are less effective in fulfilling their monitoring role. They find also that, when CEOs are involved in the nomination of directors, equity-based compensation of board members is less used, and conclude that CEOs are seeking to devise a board compensation structure that, instead of mitigating the agency problem, exacerbates it. In a similar vein, Ryan and Wiggings (2004), using a sample of 1018 US firms observed for years 1995-1997, show evidence of a negative relationship between board size and total director remuneration, as well as of lower shares of incentive-based compensation for boards who are dominated by the CEO and by insider directors. Their results suggest the importance of outsider and independent directors for contrasting the CEO's power and for devising board compensation schemes more aligned with the interests of shareholders.

2.3. Other determinants of board compensation: composition and the role of outsiders

Fernandes (2008) analyses in detail the role of nonexecutive board members, who are expected to act to protect shareholders' interests, i.e. to bridge the gap between uninformed shareholders and informed executive managers. Using a sample of 51 companies listed in the Portuguese stock market from 2002 to 2004, he finds that firm size exerts a strong positive impact on top executives remuneration and that there is no clear-cut relationship between board remuneration and company performance. Most importantly, contrary to a priori expectations, he finds that firms with more non-executive board members, pay higher wages to their executives and that in firms with zero non-executive board members shareholders' and managers' interests are better aligned (because the relationship between executive remuneration and firm performance is found to be stronger for such firms). The above results impose a reflection on the effectiveness of independent board members incentive systems and on their expected monitoring role (see also Yermack, 2004). As stated by the author: *"high compensation, together with the lack of a competitive labor market, suggests that there are few incentives for nonexecutive directors to act as honest guardians of shareholders' interests. In practice, they have little to gain from their assigned role and a lot to lose"* (Fernandes, 2008, p. 43).

Brick et al. (2006), using a sample of 1400 US firms observed from 1992 to 2001, highlight that director remuneration is positively related to the difficulty of the directors' tasks as proxied by firm size. However, in the second step of their analysis they find a positive relation between CEO

compensation and director compensation. This result could be due to the fact that large and complex firms are requiring skilled managers and higher levels of effort, or it could otherwise reflect cronyism, where top executives are pursuing their own interests against the interests of shareholders. Since there was evidence of a negative link between excess compensation (the residuals from the pay-for-performance regression) and firm performance, they are in favour of the view that overcompensation of directors and CEOs is related to firm future underperformance.

The above cited paper by Feng et al. (2007) analyzes also the link between director's pay and board composition. The authors find that when the board includes more non-executive members, total board compensation slightly decreases but total pay to executive board members increases. This outcome contradicts the expectations from the agency theory (according to which the pay of executive board members should be negatively related to the number of non-executives, used as a proxy for the level of monitoring) but is in line with the above results by Fernandes (2008) and by Brick et al. (2006), and casts serious doubts about the real role of outside and independent directors.

Horton et al. (2009), using a sample consisting of virtually all the UK listed companies in the London Stock Exchange during 2000-2007, study the relationship between executive and outside directors' connectedness to social networks and their remuneration and find that network connectedness has the opposite effect on executives' compensation compared to that on outside directors' (who are executives in other companies) compensation. The reason is that, while executives are rewarded for the performance-enhancing resources that their connections bring to the firm, outsiders accept lower compensation for their directorship for reputational purposes, i.e. to signal their credibility as experts in decision control. To our purposes, the result is useful for two reasons: it evidences that the directors' connections matter for their compensation and that board composition affects total board remuneration. In this paper, too, board compensation is put into relation with board composition in terms of inside, outside and independent directors, as well as directors exhibiting a political connection.

2.4. Ownership structure, regulation, and board pay

Barontini and Bozzi (2011) analyze the relationship between board compensation and ownership structure in a sample of 215 Italian listed firms observed in the years 1995-2002. They find that the level of board compensation is positively and significantly affected by the size of the firm. Considering the nature of the ultimate owner, the level of board compensation is found to be higher for family firms and for widely held firms while managers of State owned companies receive a significantly lower compensation. This latter result can be due to the fact that State-owned firms are pursuing objectives other than profit maximization (for example, they may be interested in

keeping or increasing the employment levels), so that one should expect lower levels of managerial compensation and a limited use of performance-related pay schemes.

The relationship between ownership and (executives and) board compensation is the focus of an increasing branch of the literature concerning newly-privatized firms. Most contribution rely on the Chinese experience (Conyon and He, 2011), where the *SOEs* reform has implied radical changes in the mechanisms governing executives compensation but, according to some scholars, has failed to improve the corporate governance of listed firms. In Europe too, during the '90s, the reform waves of State-Owned firms concentrated on privatization as a mean to solve the inefficiency of the sector. Nevertheless, State-Owned Enterprises remain prominent in air and rail transport, electricity, gas and water supply, broadcasting, natural resource extraction, banking and insurance. Most Italian public utilities are still state-controlled even if the liberalization had allowed the introduction of competitive elements in their organization and the entrance of private investors in their capital. Firth et al. (2006 and 2007) analyze the executives compensation in Chinese listed firms and confirm that the ownership structure has a significant influence on CEO's pay. In particular, Chinese firms with substantial government ownership and with large outside investors exhibit lower levels of CEO compensation. The results are particularly useful for our purposes because their paper shares some characteristics with ours: data on total compensation is not broken down into salary, benefits, and bonuses and there is no information on whether bonuses are paid. In this paper too, board compensation is measured as total remuneration disregarding any distinction between its components (equity, pay-for-performance incentives, insurance, bonuses).² However, while Firth et al. (2007) were not able to identify independent directors in their sample because of data availability, and used non-executive directors as a close proxy for independent board members, our data set allows us to disentangle board composition in the categories of insiders, outsiders, independent directors, as well as politically connected board members.

The above mentioned analysis by Feng et al. (2007) is relevant to our purposes because it refers to a sample of regulated firms, the Real Estate Investment Trusts (*REITs*) in United States. Indeed, the literature on director compensation mainly focuses on non-regulated firms. To the extent that regulation is designed to protect various stakeholders' interests, monitoring may be less important for regulated firms and can adversely impact governance. Specifically, the regulation on *REITs* favours the ownership concentration and reduces the threat of hostile takeovers, similarly to what happens in the State-Owned Enterprises considered in this paper.

² In many cases, the detailed composition of board remuneration is not provided in the annual report, in particular for those companies that at the beginning of the sample period were in the "*Azienda Municipalizzata*" form and were not obliged to provide an accurate financial reporting. In any case, as far as bonuses are concerned, we presume that most firms do not have any incentives plan for their directors so that the variable part would not show up in the compensation.

More in general, regulated firms can be subject to political constraints on executive compensation. The regulator is concerned about both profits and consumer welfare, and tries to influence executive pay in order to avoid excessive lump-sum payouts that will be against prevailing public sentiment. Consistently with the above arguments, Joskow et al. (1996) find, for a sample of 87 US state-regulated private utilities observed during 1978-1990, that CEOs of regulated firms earn less than their unregulated counterparts and have a compensation scheme that is less tied to firm profitability.

Since we are working on a sample of State Owned local public utilities, we do not expect to find board compensation levels which are strongly related to company performance. Moreover, following the above discussion, we also expect that the presence of politically connected directors in the board would act to reduce even more board remuneration levels and the adoption of incentive compensation schemes.³

3. Data set and definitions

3.1. Definitions

Board is the number of directors sitting on the board. Board composition is defined according to the political affiliation, the independence, the status of insider or outsider of each director. *Politically connected directors* may be identified by their present or past activity in the political arena, as represented by a political charge, the membership to a political party, the candidacy for election. We consider as politically connected directors holding a seat in the parliament or in the Municipal, Provincial or Regional government at the same time as a seat in the board or before, or, more generally, directors affiliated to a political party and whose relationship with political parties is well known.

We define as *outside directors* board members who are not current employees of the firm, so that they might also cover one of the top positions, typically the President, if they have no executive powers. Outside directors are not qualified on the basis of their inside stock ownership because most of the Italian public utilities are totally owned by a local or central government and the category is irrelevant.

Independent directors are detected by relying on the “*Codice di autodisciplina*” issued by the Committee for corporate governance of listed firms of the Italian Stock Exchange: “*A convenient proportion of non executive directors is represented by independent directors, who must not be involved in any economic relationship with the firm, its executive directors and its shareholders,*

³ For an extensive review of the literature focusing on politically connected firms, see Menozzi et al. (2011).

cannot execute control or relevant influence over the firm and are not relatives of anyone in such a positions (page 21).” Therefore, board members are considered as independent if they do not exhibit any supplier, customer, interlocking, or potential competitor relationship with the firm. Listed companies in the sample must clearly state if their directors are independent or not according to the “*Codice di autodisciplina*” and sometimes non-listed companies do the same in their balance sheet or chart. We fill the missing information for non-listed companies by applying the same criterion to their directors. Some directors are said to be independent even if they act as officers in the public entity controlling the firm. In these cases we preserve the firm’s indication and classify the director as (politically connected and) independent.

3.2. Data set and summary statistics

The data set includes economic, technical and governance variables of 106 Italian public utilities surveyed annually in 1994-2004. The majority of firms are located in the north of Italy⁴, in particular the ones in the energy sector, which were born as “Aziende Municipalizzate” and were subsequently transformed into limited companies.

Information on governance was not included in the original data and its collection makes this dataset unique. It includes: the juridical form, the biggest three shareholders’ identity, the board compensation, the name of directors, their position in the board (President or Vice President, CEO, non-executive director), their political connection, if any, their position as insider, outsider or independent directors as declared in the firm chart or deducted from their role and curriculum. Politically connected directors were identified by running the biographical research on the electronic databases FACTIVE, LEXIS-NEXIS, ABI Inform (press release) and the Who’s Who in Italy, but most of the information was found in the Internet.

Table 1 summarizes some descriptive statistics for the profit ratios, the dimensional variables, board composition, the blockholder, that is the shareholder, normally one, owning the largest proportion of equity, the juridical form and the industry segment. All nominal values have been deflated taking year 2000 as the base-year.

Per capita board compensation is computed as total board compensation, that includes all forms of compensation earned by the directors for sitting on the board including commissions, bonuses, compensation in kind and social security contributions, divided by the number of directors serving on the board. It excludes any salary, wage and related benefits due the inside directors and accounted for in the payrolls. Figure 1 shows that the average per capita board compensation has increased over time, passing from 20,541 euros in 1994 to 36,396 euros in 2004.

⁴ More precisely, 46% of the firms are located in the North-West, 34% in the North-East, 10% in the Center and 10% in the South and Islands.

Firm performance is measured by means of accounting indices (ROA, ROI and ROE). Market based measures of performance are not available because only 9 out of 106 firms are listed. ROA is computed as EBIT, earning before interest and tax expenses (which is equivalent to the operating profit), over total assets, ROI as EBIT over capital invested (the sum of equity and financial debt), and ROE as the proportion of Net Income over equity. During the sample period, Italian public utilities show rather low profitability rates: the average ROA equals 3.7%, while ROI and ROE are on average 6.9% and 6.5%, respectively.

On average, boards are composed by less than seven persons, and sometimes all directors are politicians. Outside directors are as common as politicians, but most of them are not independent.

We differentiate among three blockholders: *Prblock* is a dummy variable which identifies private blockholders, while state entities are divided between *Lblock* (equal to one for local government) and *Pubblock* (equal to one for higher levels of government, like a Province, a Region, a Ministry or the Central Bank). The local government (*Lblock*) is the most popular type of blockholder, followed in turn by private owners and by Regional, Provincial, and State organisms.

The figures concerning the three juridical forms “Azienda Municipalizzata” (*Azmun*), “Azienda Speciale” (*Azspec*) and limited company (*Corp*) reflect the changes imposed to the Italian public utilities during the period 1994-2004. Most observations refer to limited companies, the final step in the evolution of the juridical form in the “corporatization” process.

Most firms (56%) are diversified into several activities, mainly in the gas and water segments. The remaining firms operate in one sector only and are specialized in the water (21%), gas (18%) and electricity (5%) segment.

While Table 1 highlights the dominance of politicians in the board, Table 2 shows that their incidence decreases as the number of independent directors goes up. A positive correlation between board size and firm dimension is also found. The incidence of politicians in the board is negatively correlated to the profit ratios and to the size variable *Assets*. Menozzi et al. (2011) analyze into depth the relationship between political connection and performance existing in Italian local public utilities, and find robust evidence of a negative link between the proportion of politically connected directors in the board, % *Polit*, and ROI. This result suggests that, in order to fully take benefit from reforms that involved corporatization and partial privatization of *SOEs*, utilities should get rid of the influence of politically connected directors.

Table 2 highlights that the percentage and the level of independent and outside directors are positively correlated with both measures of size *Assets* and *N*, the employment level. Moreover, per capita compensation is negatively correlated with board size and with the level and the percentage of politicians and outsiders. On the contrary, there is no significant correlation with independent

directors: it seems that independent directors do not influence the level of compensation, while politicians and outsiders have a depressing effect on it. This first descriptive statistics are consistent with the arguments developed in sections 2.2 and 2.4 about the role of board size and the role of political influence in shaping managerial compensation.

Finally, as mentioned in section 2, the most consistent finding in the executive compensation literature is the positive relationship between pay and company size. The correlation matrix in Table 2 suggests the same result: per capita board compensation is positively correlated with different measures of firm dimension: total assets, the number of employees and (not showed in Table 2) total revenues. We will consider these results more rigorously in a context of a multivariate analysis in the following section.

4. Empirical analysis

Building upon previous work on the determinants of board and executive compensation, that mostly focused on the realm of private firms, we estimate the following model:

$$Per\ capita\ comp_{it} = \beta_0 + \beta_1 size_{it} + \beta_2 G_{it} + \beta_3 X_{it} + \lambda_t + \eta_i + \varepsilon_{it} \quad (1)$$

where *Per capita comp_{it}* is the per capita board compensation paid by firm *i* at time *t*; *size_{it}* is a measure of firm size; *G_{it}* is a set of governance variables concerning board composition: *Board* is the total board size, % *Polit*, % *Indep*, % *Out* are the percentage of politicians, independent and outside directors as a fraction of total board size.⁵

The regressor *X_{it}* represents a set of control variables such as the sector (*Water*, *Electricity*, *Gas*, *Multiutilities*). For measuring firm size, we use a set of dummies, *Small*, *Medium*, *Big* indicating that a firm's assets fall into the 30th, 60th or greater percentile, respectively⁶; *λ_t* is a time dummy, *η_i* an individual, time invariant variable and *ε_{it}* the error term.

In order to duly take into account the endogeneity problem affecting the relationship between board compensation and its composition, we apply the two-step GMM-sys estimation method to model (1). The two-step GMM-sys estimates retain the moment conditions for the in-difference equation by instrumenting variables in differences with variables in levels, and add new conditions

⁵ Table 2 shows a very high correlation between politicians and outside directors, so that we finally decided to conduct our empirical analysis by relying only on the shares of independent and politically connected directors. In fact, the inclusion all the three proportions would have been redundant and statistically not appropriate. Moreover, we have run regressions that consider board composition “in levels”, i.e. with *Polit*, the number of politicians sitting on the board, and *Indep*, the number of independent directors, as explanatory variables. The results were very similar to the ones reported in table 3.

⁶ We used alternative measures of firm size, such as total assets (*Assets*), total headcount (*N*) or total revenues and the results are virtually unchanged.

by instrumenting variables in levels with variables in differences (Blundell and Bond, 1998). In practice, the model is treated as a system of equations, one for each time period, where the predetermined and endogenous variables in first-differences are instrumented with suitable lags of their own levels; the predetermined and endogenous variables in levels are instrumented with suitable lags of their own first differences. *Board*, *% Polit* and *% Indep* are considered as endogenous regressors. The results of the two-step GMM-sys estimates with correction for heteroskedasticity of model (1) are presented in Table 3, column (1). Given the absence of second order correlation in the first difference of the error term, and since the difference-in-Hansen test still fails to reject the hypothesis that the additional moment conditions are valid, the two-step GMM-sys estimator may be relied on.

The estimates reported in table 3, column (1), show that per capita board compensation is strongly correlated to firm dimension: small and medium firms present significant lower compensations than big firms (the omitted variable), confirming the results previously obtained in the international context. In the water sector, per capita board compensation is also significantly low as compared to the energy sectors (gas and electricity). The reason is twofold: on the one hand, the water sector has traditionally been the object of a quite strong social control due to the evident welfare implications of its functioning, and the level of compensation of employees and top officers has been moderated accordingly; on the other hand, the increase in the level of competition (and the associated managerial risk) in the energy sectors during the last decade has pushed the top officers remunerations upwards.

The estimates show also that in Italian public utilities per capita board compensation is negatively related to board size, as in Feng et al. (2007), Firth et al. (2007) and Ryan and Wiggins (2004). Consistently with the discussion in section 2.2., it appears that also for *SOEs* big boards find it difficult to exert their monitoring role of the management.

In addition, the results show that the presence of politically connected directors reduces the level of board remuneration, in line with the arguments of Feng et al. (2007) and Joskow et al. (1996) on the role of stakeholders who are pursuing objectives which are different from profit maximization, and who tend to avoid the endorsement of rich compensation packages that would be very unpopular and judged as excessively high by the press and the public opinion.

The estimates confirm the absence of a significant correlation between independent directors and board compensation. As in Fernandes (2008), this finding casts some doubts about the monitoring role of non-executive directors and suggests the need for a tighter definition of independence.

In order to verify the existence of any relationship between ownership structure, board composition, firm performance and board compensation, as it emerges from the literature illustrated in Section 2, we estimate the model:

$$Per\ capita\ comp_{it} = \beta_0 + \beta_1 size_{it} + \beta_2 G'_{it} + \beta_3 X_{it} + \beta_4 perf_{it} + \lambda_t + \eta_i + \varepsilon_{it} \quad (2)$$

where *Per capita comp*_{it} is the per capita board compensation in firm *i* at time *t*; *size*_{it} is a measure of firm size; *G'*_{it} is a set of governance variables: *Board*, % *Polit*, and % *Indep* refer to board composition as in model (1); *Azmun*, *Azspec* and *Sock*, are dummy variables denoting the juridical forms “Azienda municipalizzata”, “Azienda speciale” and limited company, respectively; *Publock*, *Lblock* and *Prblock*, are dummy variables indicating that the major shareholder is a public entity like a Province, a Region or a Ministry, a local municipality or a private subject, respectively. The vector *X*_{it} represents a set of control variables such as the sector (*Water*, *Electricity*, *Gas*, *Multiutilities*) and firm size; *perf*_{it} is a measure of firm performance, alternatively ROI, ROA and ROE; λ_t is a time dummy, η_i an individual, time invariant variable and ε_{it} the error term. The results of the estimates of model (2) are presented in columns (2), (3), (4) and (5) of Table 3.

The results of the estimates of model (1) about board size and composition, firm size and industry segment are all confirmed: per capita board compensation is negatively related to board size and to the incidence of politically connected directors; it is lower in small and medium firms with respect to big firms and in the water sector with respect to the energy and the multiutilities segments.

While the estimates do not show any significant effect of ownership, here defined on the basis of the public or private nature of the major shareholder, on per capita board pay, they instead show a negative and significant effect of the two juridical forms “Azienda Municipalizzata” and “Azienda Speciale”. Therefore, firms that have undertaken the corporatization process are granting higher compensation levels to their boards of directors, consistent with the view that, after being transformed into limited responsibility companies, utilities are encouraged to hire the most qualified managers. This interpretation is in line with Cambini et al. (2011), who provide evidence that the corporatization process is bringing efficiency gains (in terms of cost reduction) for a sample of Italian local public transport firms observed over the years 1993-2002, and with Menozzi et al. (2011), who find, for a larger sample of utilities active in gas, water and electricity distribution, that corporatization has a positive impact on accounting measures of performance.

Finally, consistently with expectations (see the discussion in section 2.1), we find for the Italian public utilities that per capita board compensation is not significantly correlated with the profitability ratios. This is not surprising since most Italian public utilities are not listed and stock

options and incentives schemes have been almost absent till now. We have run also regressions in which the presence of a pay-for-performance link is tested by including the interaction terms $ROI*Prblock$, $ROI* \% Polit$ and $ROI* \% Indep$. Only $ROI* \% Indep$ shows up with a positive and significant sign (column 5), suggesting that the presence of independent directors has the effect of increasing board pay only when firm performance increases, according to the view that independent directors somewhat help to align the interests of managers and shareholders.⁷

5. Conclusions

Board and executive compensation represent two major components of the firm's incentive structure and corporate governance. While this has been an highly debated topic with reference to private and listed firms, it has not been explored at all for State-Owned Enterprises (*SOEs*), in spite of the fact that executive compensation schemes have been the object of some important restructuring during the last two decades of *SOE* reforms in Europe and Asia. One example is the limit imposed to the compensation of *SOEs*' directors in Italy by the budgetary law 296/2006.

In this paper we propose to contribute to this field of studies by investigating the relationship between board compensation and governance mechanisms by using a sample of 106 Italian public utilities observed for the years 1994-2004. During this period, the liberalization process of the sector took place, changing the industrial and institutional environment but leaving the ownership mainly in the hand of the State and of the local municipalities.

The results of our estimates confirm some important results reached in previous literature. Board compensation is significantly negatively related to board size, suggesting that the directors' compensation structure can exacerbate the agency problem between the board and the shareholders. We also find that boards are better remunerated in big firms and in the energy sector with respect to the water sector. However, the estimates highlight that there is no discernible link between board compensation and company performance, confirming also for *SOEs* the doubts raised by Goergen and Renneboog (2011), who are rather skeptical about the efficaciousness of incentive pay packages in aligning the interests of shareholders with those of managers.

As far as the ownership structure is concerned, the public or private nature of the major shareholder is not found to have an impact on board compensation. However, the juridical form matters, since limited companies pay their directors more than firms with more traditional juridical forms like "Azienda Municipalizzata" and "Azienda Speciale".

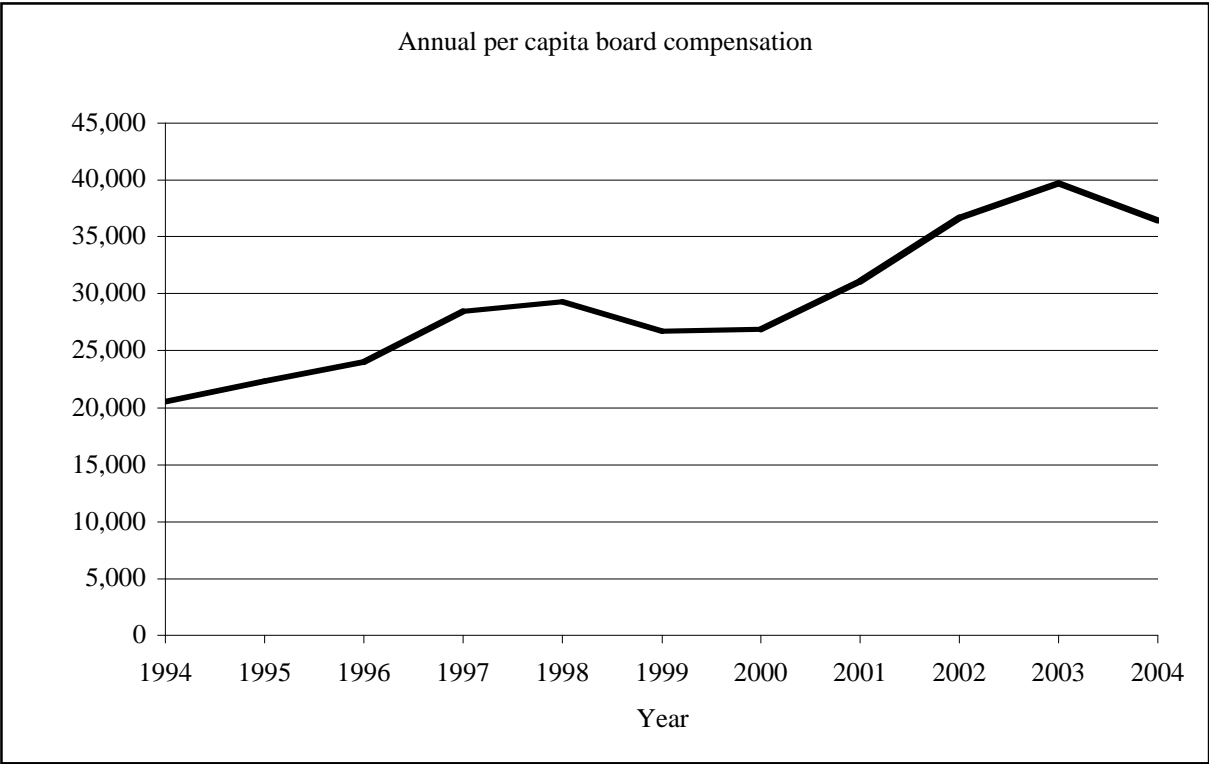
⁷ As commented in section 2.1, since we do not have information about the different components of board compensation, we cannot explore into more depth the role of board composition and ownership in promoting the implementation of incentive remuneration schemes.

Turning towards the effect of board composition, we characterize directors on the basis of their status of insiders, outsiders, independent, as well as on their political connectedness. We find that the proportion of politicians sitting in the board negatively influences the level of per capita compensation, which seems to suggest that the political influence within *SOEs* could lead to relation-based rather than market-based contracts, where managers and board members are typically political appointees with careers and pay less subject to market forces.

Finally, independent directors are found to positively affect board pay only in correspondence with high performance levels, a result consistent with the view that the appointment of independent directors could be of some help in reducing the agency problem between managers and shareholders.

It is common wisdom that *SOEs* are affected by the presence of multiple and potentially conflicting objectives, so that clear and good corporate governance practices are strongly required. Reforms have been introduced in order to improve the performance of local public utilities, but their effects could be neutralized by the activity of self-interested managers and by the presence of weak board of directors. Our results about the determinants of board compensation suggest that, by reducing the number of politicians and by increasing instead the number of (truly) independent directors, managers could be more motivated (or could be forced) to work in the interest of the shareholders (and especially to the benefit of private investors, who should be more willing to buy minority shares in *SOEs*).

Figure 1. Annual per capita board compensation



Per capita board compensation per year, in euros at year 2000 values.

Table 1. Descriptive statistics

	<i>Number Observ.</i>	<i>25%</i>	<i>Median</i>	<i>75%</i>	<i>Mean</i>	<i>St. Dev</i>
<i>Per capita comp (euro)</i>	715	8993	15494	30622	28236	39275
<i>ROI</i>	715	0.021	0.050	0.090	0.069	0.098
<i>ROA</i>	715	0.013	0.033	0.056	0.037	0.037
<i>ROE</i>	715	0.007	0.037	0.091	0.065	0.120
<i>Assets ('000 euro)</i>	715	23024	63228	179306	212623	476818
<i>Sales ('000 euro)</i>	715	11625	27571	85907	96910	221688
<i>N</i>	715	53	164	399	385	673
<i>Board</i>	715	5	7	7	6.143	2.484
<i>Polit</i>	715	4	5	6	5.582	2.493
<i>Indep</i>	715	0	0	2	1.418	2.099
<i>Out</i>	715	4	5	6	5.013	2.454
		<i>Mean</i>				
<i>Publock</i>	19	0.023				
<i>Lblock</i>	662	0.790				
<i>Prblock</i>	157	0.187				
<i>Azmun</i>	178	0.212				
<i>Azspec</i>	221	0.264				
<i>Corp</i>	439	0.254				
<i>Gas</i>	541	0.646				
<i>Water</i>	623	0.743				
<i>Electricity</i>	309	0.369				
<i>Multiutilities</i>	581	0.693				

Per capita comp is the total per capita compensation, *ROI* is the return on invested capital, *ROA* is the return on assets, *ROE* is the return on equity, *Assets* represents the firm total assets, *Sales* the revenues, *N* the number of employees, *Board* is the board size, *Indep* is the number of independent directors, *Polit* is the number of politically connected directors, *Out* is the number of outside directors. *Publock* is a dummy variable for firms whose blockholder is a State entity at the highest level (Ministry, Region, Province, Central Bank, etc.), while *Lblock* identifies firms with local governments as blockholders. *Prblock* is a dummy variable for firms whose blockholder is a private entity. *Azmun*, *Azspec*, *Corp* are dummies accounting for the juridical form (Azienda Municipalizzata, Azienda Speciale, and limited company, respectively). *Gas*, *Water*, *Electricity* are dummies for firms operating in at least one sector, while *Multiutilities* identifies diversified utilities who run several businesses.

Table 2. Correlation matrix

	<i>Per capita comp</i>	<i>Board</i>	<i>Polit</i>	<i>Indep</i>	<i>Out</i>	<i>% Polit</i>	<i>% Indep</i>	<i>% Out</i>	<i>ROA</i>	<i>ROI</i>	<i>ROE</i>	<i>Assets</i>	<i>N</i>
<i>Per capita comp</i>	1								0.050	0.029	-0.113***	0.351***	0.270***
<i>Board</i>	-0.293***	1							0.008	-0.079**	-0.026	0.134***	0.115***
<i>Polit</i>	-0.336***	0.915***	1						-0.065*	-0.155***	-0.057	0.068*	0.051
<i>Indep</i>	-0.026	0.396***	0.270***	1					0.039	-0.021	-0.062*	0.305***	0.259***
<i>Out</i>	-0.297***	0.970***	0.913***	0.364***	1				-0.042	-0.116***	-0.035	0.134***	0.970***
<i>% Polit</i>	-0.112***	-0.048	0.338***	-0.203***	-0.002	1			-0.214***	-0.292***	-0.149***	-0.126***	-0.048
<i>% Indep</i>	-0.022	0.198***	0.088***	0.917***	0.189***	-0.215***	1		0.018	-0.035	-0.055	0.241***	0.198***
<i>% Out</i>	-0.410***	0.623***	0.591***	0.208***	0.716***	-0.048	0.213***	1	-0.025	-0.078**	0.027	0.104***	0.623***

Pearson correlations between board characteristics, profit ratios and measures of firm dimension: *Per capita comp* is the per capita board compensation, *Board* is the board size, *Polit* is the number of politically connected directors, *Indep* is the number of independent directors, *Out* is the number of outside directors, *% Polit* is the fraction of politically connected directors, *% Indep* is the fraction of independent directors, *% Out* is the fraction of outside directors, *ROA* is the return on assets, *ROI* is the return on invested capital, *ROE* is the return on equity, *Assets* represents the firm total assets, *N* the number of employees. *** Significant at 1%; ** Significant at 5%; * Significant at 10%.

Table 3. Board composition and per capita compensation

VARIABLES	Dependent variable: <i>Per capita comp</i>				
	(1)	(2)	(3)	(4)	(5)
<i>Board</i>	-2,787**	-3,508*	-3,570*	-3,818***	-3,226**
	(1,359)	(1,791)	(1,832)	(1,466)	(1,389)
<i>% Polit</i>	-4,656*	-2,664**	-4,883**	-4,108**	-2,342*
	(2,421)	(1,199)	(2,915)	(1,849)	(1,288)
<i>% Indep</i>	3,491	-26,460	-27,019	-7,419	-17,843
	(31,619)	(21,909)	(21,083)	(14,095)	(12,327)
<i>Small</i>	-18,445***	-21,428***	-21,743***	-19,506***	-17,961***
	(5,820)	(8,089)	(8,333)	(5,807)	(5,900)
<i>Medium</i>	-7,676*	-10,835	-10,992	-10,246**	-9,435*
	(4,358)	(7,514)	(6,708)	(5,203)	(5,191)
<i>Water</i>	-15,185*	-15,109*	-15,084**	-11,994**	-17,336**
	(7,962)	(7,879)	(7,403)	(5,673)	(7,571)
<i>Gas</i>	8,043	4,618	3,040	6,058	4,264
	(4,901)	(4,912)	(4,644)	(4,856)	(3,910)
<i>Electricity</i>	-2,822	-2,236	-2,507	-1,793	-1,895
	(5,163)	(5,007)	(5,004)	(4,372)	(5,230)
<i>Multiutilities</i>	885.8	1,310	1,628	1,774	2,140
	(6,496)	(6,011)	(5,952)	(4,699)	(4,386)
<i>Azmun</i>		-13,099*	-14,158*	-12,254*	-10,339*
		(7,823)	(7,923)	(7,188)	(5,445)
<i>Azspec</i>		-15,359**	-15,292**	-14,266**	-11,638**
		(6,247)	(6,903)	(5,778)	(5,478)
<i>Publock</i>		4,771	-226.6	7,678	6,148
		(21,873)	(23,048)	(18,694)	(17,309)
<i>Prblock</i>		-5,867	-7,339	-2,093	-4,473
		(9,386)	(10,430)	(8,406)	(8,047)
<i>ROI</i>		-648.4			-20,346
		(25,783)			(21,796)
<i>ROA</i>			56,184		
			(69,543)		
<i>ROE</i>				-16,453	
				(18,842)	
<i>ROI* % Indep</i>					138,132*
					(71,829)
<i>Constant</i>	91,189***	88,768**	90,801**	83,531***	98,874***
	(34,064)	(41,769)	(40,203)	(27,025)	(27,326)
AR(2) p-value	0.269	0.193	0.184	0.199	0.209
Hansen Sargan p-value	0.965	0.342	0.258	0.790	1.000
Time dummies	yes	yes	yes	yes	yes
Observations	715	715	715	715	715
Number of firms	106	106	106	106	106

Estimated models: GMM-sys2. *Per capita comp* is the total per capita compensation, *Board* is board size, *% Indep* and *% Polit* identify the percentage of independent and politically connected directors, *Small* and *Medium* are dummy variables identifying firms whose total assets fall in the 30th and 60th percentile. *Gas*, *Water*, *Electricity* are dummies for firms operating in at least one sector, while *Multiutilities* identifies diversified utilities who run several businesses. *Azmun* and *Azspec* are dummies accounting for the juridical forms Azienda Municipalizzata and Azienda Speciale, respectively. *Publock* is a dummy variable for firms whose blockholder is a State entity at the highest level (Ministry, Region, Province, Central Bank, etc.), while *Prblock* identifies private blockholders. *ROI* is the return on invested capital, *ROA* is the return on assets, *ROE* is the return on equity, *Assets* represents the firm total assets.

*** Significant at 1%; ** Significant at 5%; * Significant at 10%. Standard errors in parentheses.

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